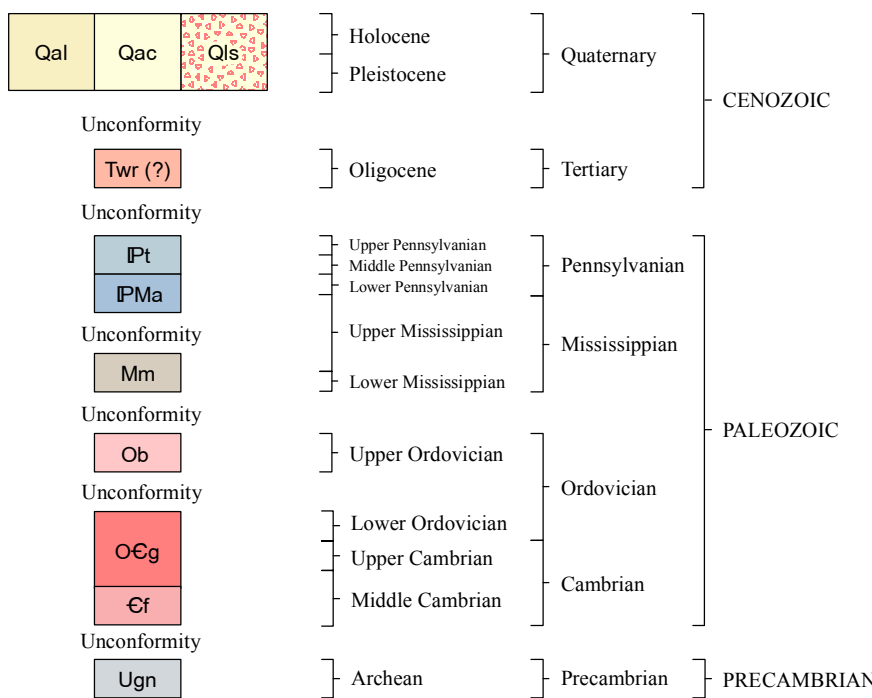


Geology - Interpreting the past - Providing for the future

(TABLETOP)

## EXPLANATION

### CORRELATION OF GEOLOGIC UNITS



### MAP SYMBOLS

- Formation contact—Dashed where approximately located.
- Fault—Dashed where approximately located and dotted where concealed. Arrows indicate relative direction of oblique slip motion on northeast-trending faults. Ball and bar on downthrown side. ⊕ - Denotes motion away and ⊙ - denotes motion toward viewer in cross section
- Line of cross section
- Strike and dip of beds

### DESCRIPTION OF GEOLOGIC UNITS

#### Quaternary surficial deposits

- Qal** Alluvium (Holocene and Pleistocene)—Unconsolidated deposits of clay, silt, sand, and gravel along stream valleys at or near present stream levels
- Qac** Mixed alluvium and colluvium (Holocene and Pleistocene)—Sand, silt, clay, and gravel deposited mainly along intermittent streams; includes slope wash and smaller alluvial fan deposits that coalesce with alluvium
- Qls** Landslide deposits (Holocene and Pleistocene)—Blocks of bedrock or loose slope debris; arrows point in the inferred direction of movement

#### Tertiary sedimentary rocks

- Twr(?)** White River Formation (?) (Oligocene)—Bentonitic tuff. Altered volcanic ash comprised of swelling clays with minor quartz, feldspar, mica, and calcite; glass shards visible under microscope; very pale orange to light gray. Conglomerate or cobble zone noted at one outcrop near Carr Spring. Cobbles made up of igneous and metamorphic rocks and some Cambrian rocks. Deposited in valleys cut into Paleozoic rocks. Variable thickness

#### Paleozoic sedimentary rocks

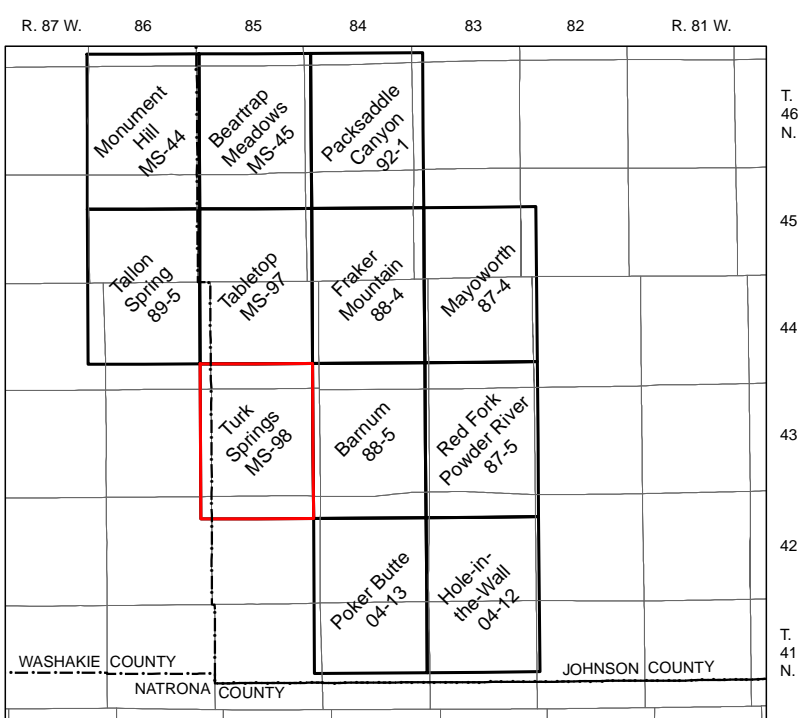
- IPt** Tensleep Sandstone (Upper and Middle Pennsylvanian)—Sandstone and dolomite. Sandstone is mostly fine grained, very light gray to yellowish-gray, medium- to large-scale cross-beds, some planar and rippled beds, mostly friable but some hard well-cemented zones especially in the middle and lower part. Dolomite is gray, yellowish-orange, and pinkish-gray, thin-bedded to massive, occurring mostly in lower part of the formation. Thickness from 350 to 400 feet (110 to 120 m)
- IPMa** Amsden Formation (Middle and Lower Pennsylvanian and Upper Mississippian)—Includes three members (not mapped separately). Ranchester Limestone (upper member) is dolomite, gray to grayish-orange, with thin interbeds of very dark red and olive-gray shale and mudstone. member is quite thin in this area. Horseshoe Shale (middle member) is mudstone and shale, moderate-red to reddish-orange; includes thin beds of gray, finely crystalline limestone. Darwin Sandstone (lower member) is sandstone, fine- to medium-grained, light-gray to reddish-brown, cross-bedded to planar bedded; variable thickness; locally absent. Total formation thickness 200 to 250 feet (61 to 76 m)
- Mm** Madison Limestone (Upper and Lower Mississippian)—Limestone and dolomite, gray to yellowish-gray, thin- to thick-bedded, fossiliferous in most intervals, chert nodules and lenses common in some zones. Dolomite limestone at base and karst surface developed on top. Thickness from 300 to 400 feet (91 to 120 m)
- Ob** Bighorn Dolomite (Upper and Middle Ordovician)—Dolomite with basal sandstone. Dolomite is gray to light olive gray, light-red to pink mottling locally, very hard, medium-bedded to massive, calcareous in part, characteristically pitted on weathered surfaces. Sandstone is quartzitic, fine- to coarse-grained; very light gray with maroon spots, dusky red, or moderate yellowish brown; friable to well-cemented; comprises lower 15 to 30 feet (5 to 9 m). Total thickness varies from 50 feet (15 m) in the north, to zero in the south pinching out in sec. 20, T. 43 N., R. 85 W.
- OCg** Gallatin Limestone and Gros Ventre Formation, undivided (Lower Ordovician and Upper and Middle Cambrian)—Uppermost unit (Gallatin Limestone) contains resistant grayish-red limestone and thin beds of flat-pebble conglomerate underlain by olive-green to yellowish-brown, glauconitic shale and siltstone. Middle unit (Gros Ventre Formation) includes light-gray limestone, silty and glauconitic, interbedded with soft grayish-green shale and beds of flat-pebble conglomerate. Basal unit (Gros Ventre Formation) consists of yellowish-brown to reddish-brown, friable, medium- to coarse-grained glauconitic sandstone. The two formations are not distinguishable in this area. Landslides are common in this unit. Total thickness 500 to 600 feet (150 to 180 m)
- Cf** Flathead Sandstone (Middle Cambrian)—Tan, brown, and reddish-gray quartz sandstone; medium- to coarse-grained and cross-bedded to planar bedded; thin interbeds of green, maroon, and tan siltstone, mainly in the upper part; arkosic conglomerate in lower part. Thickness 300 to 400 feet (91 to 120 m)

#### Precambrian crystalline rocks

- Ugn** Granitic Gneiss (Archean)—Layered granitic gneiss cropping out along or near the Big Trails fault system in the western part of map area; dates of metamorphism 3,000+ million years. On cross section only

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Geologic quadrangle maps of the southern Bighorn Mountains available from the Wyoming State Geological Survey (Open File Report maps are annotated with the year and number of each map and MS indicates Map Series)

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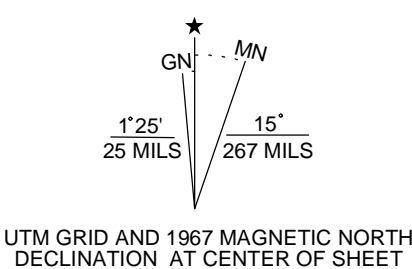
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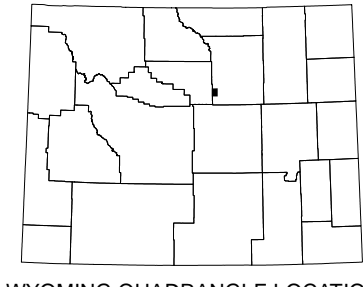
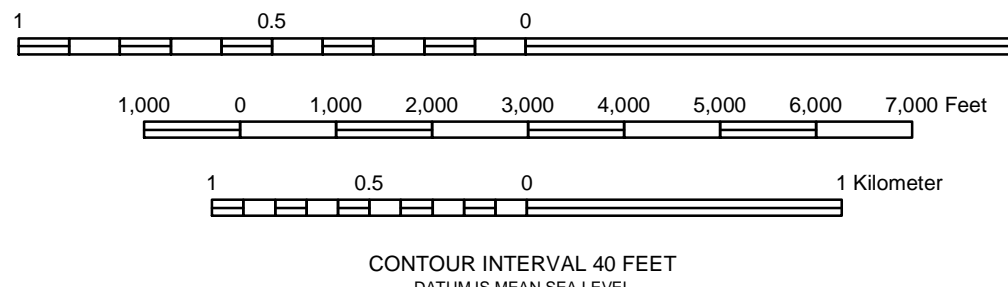
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Base map from U.S. Geological Survey 1:24,000-scale topographic map of the Turk Springs, Wyoming 7½-minute Quadrangle, 1967.

Projection: Universal Transverse Mercator (UTM), zone 13  
North American Datum of 1927 (NAD 27)  
1,000-meter grid ticks: UTM, zone 13  
10,000-foot grid ticks: Wyoming State Plane Coordinate System, East Central zone



SCALE 1:24,000

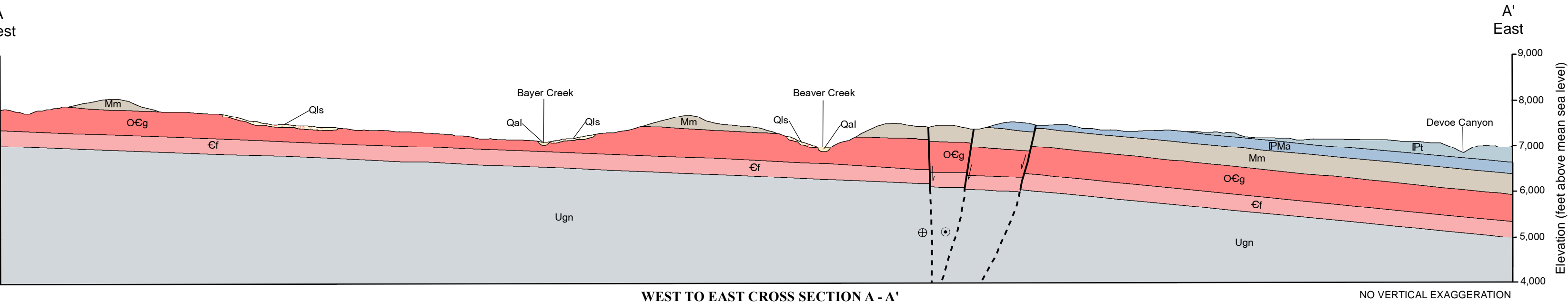


Digital cartography by Thomas E. Ver Ploeg

Map Editing by Suzanne C. Luhr and Richard W. Jones

Geology mapped in 1989

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## GEOLOGIC MAP OF THE TURK SPRINGS QUADRANGLE, JOHNSON AND WASHAKIE COUNTIES, WYOMING

by  
Alan J. Ver Ploeg and Phillip L. Greer  
2011